

II. Remarks

A. Status of Claims

Claims 1, 4-6, 10, 13, and 15-19 are pending. Claim 1 is amended. Claims 16-19 are new. Accordingly, no new matter has been added.

Applicants thank the Examiner for withdrawing the rejection under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,187,391 to Kataoka et al. ("Kataoka") as evidenced by Ward, Surface Science, 1978, p. 257-73 ("Ward"). Applicants also thank the Examiner for withdrawing the rejection under 35 U.S.C. § 102(b) as being anticipated by Zara, et al., Tappi Journal, 1995, p. 131-34. Applicants also thank the Examiner for withdrawing the rejection under 35 U.S.C. § 103(a) as being unpatentable over Kataoka in view of U.S. Patent No. 4,017,257 to Weil. Currently none of the claims are rejected based on any cited reference.

B. Written Description Rejection, 35 U.S.C. § 112, first paragraph

Independent Claims 1 and 13, and dependent Claims 4-6, 10, and 15 are rejected under 35 U.S.C. § 112, first paragraph, as lacking a written description for the terms "functionalized olefin" or "olefin containing a functional group." Applicants note that these terms were present in the claims as originally filed and have not been rejected in the previous four Office Actions. Applicants traverse this rejection based on the below arguments.

The written description requirement functions to ensure that the inventors had possession of the claimed invention as of the filing date. (*See In re Wertheim*, 191 U.S.P.Q. 90, 96 (CCPA 1976)). To comply with the written description requirement, it is not necessary that the specification describe the claim limitation exactly or that there is literal support for the claims, but that a person of ordinary skill will recognize from the specification that the applicants had possession of the claims subject matter. (*See In re Smythe*, 178 U.S.P.Q. 279, 284 (CCPA 1973)). It is well established that an applicant is entitled to claim his invention generically. (*See Utter v. Hiraga*, 6 U.S.P.Q.2d 1709, 1714 (Fed. Cir. 1988) ("A specification may, within the meaning of 35 U.S.C. § 112 ¶1, contain a written description of a broadly claimed invention without describing all species that claim encompasses.")). The USPTO has the initial burden to show that the claimed invention is not described by the specification. (*See In re Wertheim*, 191

U.S.P.Q. at 98 (“The PTO has done nothing more than to argue lack of literal support, which is not enough.”)).

The Examiner admits the glycidylmethacrylate and allylglycidylether are disclosed in the specification and satisfy the written description requirement. (*See* Office Action, page 4). However, the Examiner alleges that “with the exception of the above specifically disclosed chemical structure, the skilled artisan cannot envision the detailed chemical structure of the encompassed olefins containing a functional group, regardless of the complexity or simplicity of the method of isolation.” (*See* Office Action, page 5). The Office Action cites two cases for the proposition that the chemical structure itself is required to satisfy the written description. These cases are not on point and fail to support the Examiner’s proposition. In *Fiers v. Revel*, 25 U.S.P.Q.2d 1601, 1606 (Fed. Cir. 1995), the Court stated that: “An adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself.” In *Fiers* the applicant was claiming DNA based on a statement that the DNA is obtained by reverse transcription. In *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 U.S.P.Q.2d 1016, 1027 (Fed. Cir. 1991), the Court found that the claim did not comply with the written description, because “despite extensive statements in the specification concerning all the analogs of the EPO gene that can be made, there is little enabling disclosure of particular analogs and how to make them.” These cases, however, relate specifically to DNA and are not relevant to present invention and claims.

The specification states that the term olefin means “any suitable unsaturated (alkene or alkyne) compound capable of reacting with radicals to form a covalent bond.” (*See* specification, page 3, lines 17-18). As acknowledged by the Examiner, the specification provides more than one example of such olefins. Thus, the specification provides sufficient disclosure to demonstrate that the inventors had full possession of the claimed invention as of the filing date. Therefore the rejection must be withdrawn as improper.

C. Enablement Description Rejection, 35 U.S.C. § 112, first paragraph

Independent Claims 1 and 13, and dependent Claims 4-6, 10, and 15 are rejected under 35 U.S.C. § 112, first paragraph, as lacking enablement. Again, Applicants note that this

rejection is based on claim terms that were present in the claims as originally filed and have not been rejected in the previous four Office Actions. Applicants traverse this rejection based on the below arguments.

The Examiner makes three errors in the enablement rejection. First, the Examiner alleges, improperly, that there are no working examples. Second, the Examiner defines the state of the art in terms of van Dijk-Wolthuis that involves a different method. Third, the Examiner alleges that the claims are infinite. Because the Examiner erred in the enablement analysis, the rejection is improper and must be withdrawn.

First, the Examiner alleges that the application contains no working examples. (*See* Office Action, pages 9-10). This is clearly incorrect. The Examiner incorrectly combines all three runs of Example 1 into one example. In fact, each run is a different and separate example. Run 1.1 is a comparative run and no functionalized olefin is used. The statement by the Examiner that “the treatment with Fenton’s reagent does not produce any change in the IR spectrum” clearly applies to comparative Run 1.1. Runs 1.2 and Run 1.3, which use a functionalized olefin – glycidylmethacrylate – show the presence of an ester group. (*See* Specification, page. 8, lines 22-23). The Examiner also indicates that there is no data indicating the presence of carbon-carbon bond. Applicants disagree. Clearly, the carbon-carbon bond is demonstrated by the detection of the functional group of the GMA, *i.e.* ester, that is attached to the polysaccharides. Thus, contrary to the assertions by the Examiner, the specification does provide working examples of the claimed invention.

Second, the Examiner relies on van Dijk-Wolthuis, “Reaction of Dextran with Glycidyl Methacrylate: An Unexpected Transesterification,” *Macromolecules*, 1997, 30 (11), pp 3411–3413, to allege that “it is known that polysaccharides react with GMA by a mechanism that does not involve free-radicals to give a product having an ester group.” (*See* Office Action, page 10). The method of van Dijk-Wolthuis is clearly different from the claimed invention and does not involve a free radical formation step. The reaction in van Dijk-Wolthuis is a transesterification between GMA and dextran. There is no transesterification between GMA and dextran in the claimed invention. Instead, the stable radical formed on the polysaccharide reacts with the unsaturated carbons of the functionalized olefin. Thus, the transesterification of van Dijk-Wolthuis is irrelevant to the method of the claimed invention.

Third, the Examiner alleges that the claims are infinite. Applicants disagree. Although broad, the claim is not and has not been rejected as being indefinite. Thus, the Examiner's allegation is contrary to the remainder of the Office Action. Further, the working example and the guidance of the specification provide sufficient enablement for one of ordinary skill in the art to make and use the claimed invention. In view of this, the claims cannot be considered infinite. Thus, for at these reasons, the rejection based on a lack of enablement is improper and must be withdrawn.

D. Rejections Under 35 U.S.C. § 112, second paragraph

Independent Claims 1 and 13, and dependent Claims 4-6, 10, and 15 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for omitting an essential step. Applicants traverse this rejection based on the below arguments.

The Office Action alleges that the claims omit an essential step including the "critical steps necessary to move the radical source required by the method as claimed." Applicants disagree. The essential matter is currently claimed, namely that the "radical reacts with the functionalized olefin in the absence of the chemical source of free radicals." The Examiner has acknowledged that the cited references fail to teach this claim element. The steps for removing the radical source is not essential, as long as the radical source is removed. Thus, the claimed subject matter recites the components essential to patentability that distinguish the Claims 1 and 13 from the cited references, as indicated by the Office Action. Therefore, this rejection is improper and must be withdrawn.

E. Conclusion

In view of the foregoing, it is believed that this application is in condition for allowance, and a Notice thereof is respectfully requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 625-3536. All correspondence should be directed to the address given below.

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